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ABSTRACT

A total of 20 first- and second-grade classrooms were observed to determine the nature of their behavior settings, and to ascertain teacher goals and values implicit in the classroom organization. Observation revealed strong differences among subject areas in both time allotment and variety of resources and activities. Language arts occupied the most time and the most varied settings in all classes, with mathematics a distant second. Science activities were relatively rare. In most classes, provision was made for spontaneous play, but this was not related to academic objectives, and was seldom evaluated by the teachers. Directed reading and mathematics settings were highly teacher controlled. Both academic accountability and classroom discipline contributed to the narrow range of formats in these areas. (RH)

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Classroom Organization and Teachers' Objectives: Observations from the Primary Grades

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Objectives

This study had a three-fold purpose:

1) to determine the nature of behavior settings in primary classrooms;

2) to diagnose situations where the environmental design is inconsistent with the teacher's objectives;

3) to discover teacher values and goals implicit in the classroom organization which may differ from the goals of Ontario Ministry of Education guidelines advocating "active learning" methods with young children.

Theoretical Framework

Barker (1968) and Gump (1967) describe the classroom as a motivational environment influencing the behavior of its members. Within this environment, or "behavior setting," are many organizational components, each analysable as a discrete unit with its own attendant behaviors and "behavior objects" (i.e. props), each occupying its own time, space and personnel. Thus, a teacher-led lesson using word cards requires that children attend to the cards and respond orally when called upon, while a dramatic play centre entails co-operative effort, discussion, and sharing of initiative among the children, with or without responses from the teacher. Each unit, or segment, implies expectations for the participants' behavior.

Primary classrooms, in particular, exhibit a wide variety of behavior settings, often with many segments operating simultaneously.

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For example, traditional reading groups usually meet with the teacher while the other groups engage in seatwork or use activity centres. The centres themselves are so organized as to define behavior. For instance, a listening centre with a record on the player and accompanying books set out implies teacher direction, while one with a collection of records suggests self-selection by the child. Thus, the structure and use of behavior settings in the classroom reveal much about the teacher's intentions with respect both to behavior and to content.

Furthermore, settings vary in composition according to subject area (Stodolsky, 1984) and teacher beliefs (Hoy and Jalovick, 1979). Therefore, it is important to describe each type of segment separately, rather than to attempt some overall assessment of the environment. This is especially so in the primary classroom, where a great number and variety of activities are commonly found.

Method and Data Sources

Twenty first- and second-grade classes were observed. Trained observers drew floor plans and recorded descriptions of the physical structures of the classroom. "Behavior setting" forms were then used to record the time, format, materials and equipment, amount of choice, and participants in each activity segment. The teachers were subsequently asked their reason for each activity, and invited to discuss the recorded information.

Observations were made over four or five whole days at intervals throughout the school year, with additional visits as necessary (e.g. to compensate for cancelled classes, etc.). Narrative descriptions were kept to include as much information as possible, and were supplemented by the observers' accounts of their general impressions, responses and feelings, recorded after the visits.

Results

It was clear that these data support the findings of Stodolsky (1984), that subject matter strongly influences teachers' choice of behavior settings. In all the classes observed, the number and variety of settings was greater for language arts than for mathematics. Moreover, with one exception, the math lessons were highly teacher-directed, either through the choice of learning materials such as workbooks or dittoes, or through direct instruction.

In language arts, the behavior settings ranged from the tightly-controlled directed reading lessons to open play activities intended to promote communication and oral language among the children. In both curriculum areas, however, objectives perceived as "academic" were realized through rather narrow, teacher-controlled tasks. This was true even of "creative writing", where assignments were usually defined by the teacher and structured in terms of specific topics chosen.

The Nature of Behaviour Settings

Language Arts

Literacy appeared to be the prime goal in all the classes. The emphasis on language skills was evident in the amount of time devoted to language-related activities (40% - 60% of class time). This reflects not only the importance of language objectives, but also the teachers' perception of reading achievement as basic to later school success.

Sixteen of the twenty classes had basal reading programs, with the children grouped according to reading ability. Several of the teachers combined this with a language-experience approach to writing,

and two with an individualized approach. Two used the latter only, with children selecting the books they wished to read, while one teacher adopted the SRA reading kit. It was evident from their grouping practices that all the teachers wished to provide reading materials of a suitable level so that children could be successfull. Moreover, all the classrooms had multiple behavior settings encouraging both literacy and oral language. Examples included writing, listening and library centres, games using word skills, dramatic play materials, and selections of enjoyable books for children to use in their free or designated activity time. As well, all had teacher-led story times; and the grade ones also shared whole-group reading exercises. Of all subject areas, oral reading was the most traditional and teacher-dominated. The interviews showed this to be a reflection of the teachers' sense of accountability in this area. Several said explicitly that they regarded oral reading sessions as an opportunity to assess children's progress as well as offering practice in reading.

Along with reading, writing was a daily requirement in all classes, although children in the basal-reader classes tended to be more occupied with dittoes or workbooks emphasizing word skills. In some classes the emphasis was on creative or personal-experience writing. Often, this entailed "a story to go with your picture" or one related to the day's reading passage. In general, the attitude to literacy was traditional: correct form was praised ("You remembered to use a period"), the content rarely mentioned. Only one first-grade teacher strongly emphasized creativity and quality in writing; her class practised editing and redrafting to produce written work that would be interesting to their classmates. Four grade two teachers also emphasized story content and organization.

Although play was viewed as an opportunity for communicating and socializing, it was not viewed as a direct contributor to literacy skills, since the oral language of children's interactions was not usually incorporated in the children's writing, or in the chart stories or activities of the teacher-led sessions. Literacy was usually judged according to the level of reading selections and correctness of written productions. However, all the teachers were concerned that "reading achievement" should entail comprehension. Although the workbook exercises focused upon word skills, oral questions and discussions were intended to promote and test comprehension of the reading passages.

Mathematics

Mathematics occupied much less time than Language Arts, ranging from about 10% to 20% of the day. Eleven classes had approximately one-half hour scheduled daily, eight ranged up to 55 minutes, and one had no specific time allotted to math.

The most frequent behavior settings for mathematics were teacher-led demonstration and drills, and seatwork assigned by the teacher. Eleven teachers taught math to the whole class, three used grouping, and six had individualized or self-paced programs. Of the last, three used a self-paced workbook, one used individual contracts to permit some child choice, and another had mathematics activities available for pupils to choose. Only the last scheduled no instructional time for mathematics, and had no teacher-led math lessons. (This teacher subscribed to the developmental position that mathematical concepts would eventually be constructed as a result of play experiences, and that early specific instruction would not necessarily contribute to children's development.)

For most teachers, "mathematics" implies "number work". In nineteen of the twenty classes, the most frequent use of concrete materials was for counting, adding and subtracting. Children arranged numerals in sequence or used counters or cuisenaire rods to do simple calculations. The tasks were generally directed by the teachers, either orally while supervising a group, or through work-sheets or cards to be used by children at their own pace. Except for some imaginative measurement activity and a pretend "store", mathematics usually involved the use of numeric symbols and calculations. Worksheets and workbooks were the most frequent materials, although in most classes, the children were allowed to use counters when needed. Often, even "manipulative materials" consisted of number cards or blocks to be arranged into sequences or "number sentences".

Although many play activities can contribute to the development of mathematics concepts, few were adopted for this purpose. Math was not generally viewed as playful activity. Seven classes had math centres available at free time; only two of these included exploratory materials such as balance scales and timers as well as number cards and lines. Games were often employed to consolidate previous learning, but blocks and construction toys were not used to develop math concepts although they were usually available in the classrooms. (They were viewed mainly as "creative" materials, except when one teacher used beads for sequencing exercises.) On the whole, the teachers did not treat math as creative, but as a set of methods or operations for combining numbers. Evaluation was traditional, based on daily work and occasional teacher-made tests.

Only two teachers frequently used creative activities to further mathematical thinking. One of these used contracts, with children

choosing activities from among several provided, often working in pairs. The activities were teacher structured, with "challenge cards" providing problems or questions (e.g. "How long does it take to jump 10 times?"). This teacher had a permanent math centre with themes changing every few weeks (e.g. weight, time, etc.); it was the only math centre frequently chosen during activity time.

Some teachers did, however, make use of incidental learning to advance mathematical thinking. Behavioral routines such as lining up, distributing supplies, marking the calendar, or voting provided opportunities for "real life" arithmetic. Two teachers in particular used many group sessions in this way.

Mathematical ideas can be incorporated into science activities. However, this was rare in the present sample. Only two classes had permanent interest centres devoted to science, and in twelve, no science-related activities were observed. In the others, animals or plants were in the room, but only seed-planting provided a planned focus for scientific observation, and then no measurements of the plant growth were taken or recorded. Objects like mirrors, lenses, and prisms, which encourage math and science ideas, were not observed in any of the classrooms. If creative math was rare, creative science was non-existent in these classrooms. Problems of quantity, magnitude and physical properties, the basis of much mathematical and scientific thought, were either not valued by the teachers, or not considered suitable for young children. (Interviews indicated that the importance of literacy development diverted teacher attention from these areas, which could themselves have been the basis for many language activities.)

Mathematics was never used as a reward, except for Bingo games used to practice number recognition. Moreover, in most of the classes, unlike language activities, mathematics lessons and seatwork were usually confined to a particular block of time, often punctuated or followed by a relaxing activity such as a Health Hustle or song. Although an assignment was rarely modified, slower students were sometimes permitted to do a little less than the full assignment. It was evident from these observations as well as from their comments that the teachers regarded math as hard and stressful work.

Concrete Activities and Play

The importance of concrete activity as a basis for children's learning was acknowledged by all the teachers. Provision of opportunity for such activity was strongly advocated in the curriculum guidelines, but with little prescription for the manner of implementation. Moreover, the classroom behavior settings and interviews indicated strong differences in the teachers' views about the use and nature of learning activities and the extent to which the teacher should control them.

Play, in the sense of self-directed activity, is often cited as "the child's mode of learning." Textbooks in childhood education emphasize play materials and environmental designs to encourage participation in diverse types of play. Piagetians speak of the work-play continuum (Kamii and DeVries, 1977), in which concentrated involvement in interesting activities is viewed as a basis for developing knowledge, and suggest that activity-based learning can be used in all phases of the curriculum.

The teachers in the study expressed the view that play is important for children's development, and that it was properly part

of the school setting. However, several saw play as chiefly recreational, providing relief from the stress of work. They therefore provided abundant play materials such as games, puzzles, pegboards, books, plasticene and construction materials, but with strict controls on their use. In most classes, they could be selected by children after assigned work was completed. Thus, play was used not only for relaxation, but also as a reward for diligence and to prevent idleness that might lead to boredom and possible disruption.

Most of the teachers, though, considered play as contributing to the development of social and communicative, as well as manipulative, abilities. They also believed that it could stimulate interest and enjoyment of school in their less able pupils. They felt especially that "slow workers", who might benefit most from play activities, were least likely to get time for them. Seven therefore scheduled regular periods for self-chosen activities for all their pupils, often before work periods, while three deliberately kept assignments brief enough to permit all children to play. However, it was clear that in most classes a dichotomy was being maintained between "work" and "play", and that play was not viewed as part of academic growth, however important it might be for overall development. This was the more evident in that only three teachers capitalized on self-chosen play activities for a language-experience approach, although all had the opportunity to do so, and none used it as a basis for their mathematics program. Indeed, for some teachers, the term "learning activities" implied not play, but teacher-directed use of concrete materials to develop skills. In one class, children assigned to centres were required to choose from a selection of "work-jobs", while most classes had theme or art

periods for teacher-determined activities. Even in classes with designated play periods, most concrete activities were chosen and structured by the teachers with specific objectives in mind. It was clear that where academic outcomes were concerned, teachers wished to retain control both of the objectives and the means of attaining them; they were not prepared to trust that the children would achieve these aims through self-initiated, self-directed play.

One of the obvious indicators of how a curriculum area is valued is the length of time devoted to it in the school day. Play activities occupied about 5% to over 60% of the class time, a disparity paralleled by the comments of the various teachers. (The teacher in the first instance complained, "They only want to play," while the other explained that "It's supposed to be a 'play program".) Most cases, although less extreme, were similarly revealing of teacher views.

Another indicator of value is what is evaluated. Although half the teachers observed the children during play, none actually recorded judgements about the quality of play or its contribution to learning, although they often noted what kind of activity the child had chosen. This suggests that even the teachers who valued child-chosen activity dio not examine very carefully what children were acquiring through play. This may be because the skills and subject matter that they were concerned about were usually introduced at the teachers' initiative in more formal settings. Play thus appeared to be viewed more as a creative, social or motor outlet than as intellectual activity.

The connection between behavior settings and teachers' beliefs was strikingly evident in relation to play and active learning. Four teachers organized their classrooms on the basis of activity centres

for both play and academic learning. Their pupils worked either alone or in small groups on both assigned and self-chosen tasks. In these classrooms, timetables were flexible, and there were no desks or designated seats; the children worked at the appropriate centre or wherever they were comfortable. Although there was considerable movement and interaction in these classes, three were highly task-centred with children deeply involved in their work; the fourth was moderately so.

In the remaining classes, the work/play distinction was embodied in both the timetable and the physical arrangements. "Work" was performed at teacher-determined times at designated seats, except when children gathered for teacher-led group sessions. "Play" activities occurred at centres usually located around the boundaries of the classroom - literally "peripheral activities". Except at scheduled play periods, work was to be completed before play could begin, never vice versa. In general, work and play materials were kept separately (except in a class where a few children used math counters as building materials), and play materials were universally more interesting and attractive. To the observers, it appeared that academic work was not perceived by the teachers as resulting from inherently enjoyable and inviting activities, but as the result of discipline and adult direction.

In view of current support of more open, active primary programs (e.g. Ontario Ministry of Education, 1985), these findings pose certain problems. Evidently teachers favour play and concrete activity, but do not see them as the basis for a sound academic program. The conceptual values of play are accepted in theory, but in practice teachers do not expect play to affect intellectual or academic achievement.

Conversely, academic learning is not used to support play. In contrast to academic activities, play, viewed as social, creative and spontaneous, is seen as belonging to the children. As a result, teacher intervention is considered to be unsuited to the self-structured nature of play. Teachers therefore rarely enrich play situations by calling upon relevant academic experiences.

One exception that proved exemplary was the use of a "store" set up in a dramatic play centre. The teacher suggested that the children could make signs, price and label each item, draw up bills, and exchange play money during their transactions. This greatly enhanced the use of the centre. The negotiations that ensued resulted not only in much co-operative planning and problem-solving, but also in intensive practice in numbering, adding and subtracting. However, it was the observer, not the teacher, who noted these outcomes. For the teacher, the activity had been considered an "extra", rather than an integral part of the academic program.

Consistency of Behavior Settings with Curriculum Goals and Teachers' Objectives

a) Language Arts

The behavior settings were generally consistent with both the published curriculum goals and the teachers' stated objectives in language arts. The emphasis on reading skills was reflected in the heavy allotment of both teacher and pupil time to reading and associated tasks. Moreover, the prevalence of material resources such as class libraries and listening centres also supported the objective of encouraging enjoyment of books and personal reading.

However, the poorer readers appeared to be better served in settings

where individualized structures replaced the basal reading group. In three classes where the procedures were modified for them, several poor readers began to improve noticeably. It thus became evident that the overall setting, although supporting the teachers' aims for most of the pupils, was hindering their attainment by certain individual children.

The teachers' preoccupation with promoting reading ability resulted, in many classrooms, in a narrow perception of "language development" which affected the design of the behavior setting. Although this phrase was widely used in describing their objectives, the teachers rarely focused on oral language. Expectations for writing varied from creative stories and journal-writing to a daily requirement of two or three sentences. Teacher time devoted to assisting the writing process varied similarly. In one school where writing was highly valued, an aide was provided to assist the children; in another class, older students came in to help. After the first observation sessions, three teachers scheduled a discussion period preceding journal-writing; their children's writing became more interesting and communicative as they wrote down thoughts already organized and composed orally. As a result, the teachers considered the modified behavior settings to be more supportive of the curriculum objective of "communicative skills," and were sufficiently encouraged to continue the practice.

The narrow view of language arts as reading achievement appeared detrimental to certain other aspects of the curriculum. Because the teachers viewed reading ability as their prime academic goal, they used their prescribed reading programs as sources for most language activities and materials; therefore the content was derived from the

basal reader manuals. Given the time thus allotted, little was left for other academic areas specified in the curriculum guides as requirements. Only four teachers integrated experiences in environmental studies into the language program, usually as topics for writing. None used science or social studies materials in the reading program. Thus, the language activities supported the objective of "reading ability", but did little to encourage purposeful reading or oral discussion in these content areas. Hence, although the guidelines refer to language development as essential for all curriculum areas, and acquisition of knowledge as contributing in turn to language development, the behavior settings did not support the "integrated language" approach they support.

b) Mathematics

It was evident that the behavior settings in most classrooms did not support the curriculum goal of "developing concepts in mathematics" if this phrase is interpreted from a Piagetian point of view (Kamii and DeVries, 1977). They did, however, support the teacher objectives of familiarizing the children with traditional "number facts" and tasks. It was evident from the interviews that the settings were consistent with the teachers' views and feelings about mathematics and what children had to learn. Thus, although the behavior settings supported the teachers' own objectives, these were far narrower than the stated goals of the curriculum. The exceptions were two classes where active learning and experimentation accompanied symbolic representation, and in which the children made the connection themselves. In one class, where no math lessons or teacher-directed assignments were given, the children were expected to form mathematical concepts as a result of their play experiences. However, there was no evidence that this was occurring, perhaps because without the appropriate

language and mathematical symbols, the children were less likely to attend to or remember the salient aspects of their experiences. In any case, although this behavior setting was entirely different from the majority, it appeared equally inadequate for supporting the goal of concept development.

One is led to conclude that the nature of mathematical thinking and development in children was not well understood by the teachers. In both this sample and another of 18 grade ones, it was evident that little time was permitted for exploring and testing ideas of quantity, and that mathematical symbols were often unrelated to the concepts they represent. A right answer was treated as evidence of comprehension; if children obtained correct answers, their thinking was not questioned. If they did not, the teacher usually explained the error, but in several cases, observers noted that the explanations did not result in comprehension by the pupil. Again, this appeared to be a consequence of the belief that mathematics is a highly-controlled system in which right answers imply correct methods, and in which the manipulation of symbols is an aim, rather than a means, of reasoning.

Concrete Activities and Play

Where "concrete activities" were intended as the means to achieve specific learning objectives, their planning and use was consistent with the objectives. For example, using counters to obtain and verify sums in arithmetic was a permitted activity during mathematics periods in all the first-grade classes. In all of them, the children had been instructed in the use of the counters.

However, teacher attitudes towards child-chosen play activities were more ambivalent, especially with respect to their effects on

classroom discipline. Play was believed to contribute to a healthy, positive classroom climate and hence to promote a favourable attitude towards school. By providing occupation for children whose work was finished, it could also prevent boredom, restlessness, and consequent disruption. However, the teachers were concerned with noise that might result from letting children play together, and for some, this was hard to tolerate. (Every teacher apologized to the observers for the "noisy" classrooms. The observers had not, on any of these occasions, found the noise level to be disturbing.) As a result of Board guidelines and in-service sessions, most of the teachers in the sample wished to increase the children's active involvement in learning by extending their use of activity centres. However, several were concerned that an increase in the use of simultaneous settings and variety of materials would reduce their control over both learning outcomes and conduct. Still, for the three teachers who employed the greatest number of simultaneous activities this was not viewed as a problem. They believed that for learning to become more active, self-directed, and self-motivated, learning tasks must be less controlled. That is, both outcomes and means should become less limited, more varied.

Of all the teachers observed, these three had established the broadest set of behavioral routines. Much of the classroom discipline, therefore, was pupil managed, with lessened need for direct teacher control. As well, by using individualized concrete activities, these teachers broadened the scope of attainable information, permitting the children to engage in tasks related to their interests and levels of learning, but still relevant to the teachers' objectives.

Their classes proved exemplary. The teachers, their consultants and the observers all considered them to be consistent with the

guidelines both in terms of their academic content and skills and in their activity-based approach to learning. In all three cases, the behavior setting was structured to increase pupil choice and responsibility, and the work-play distinction was reduced. These teachers demonstrated that their academic objectives could be attained in a variety of ways, without strict control of the learning tasks. They also showed that with planning and good management, teacher direction is not required to maintain good discipline and task-orientation.

Implications

If guidelines advocating activity-based learning are to be implemented, new forms of classroom organization will be required.

Active learning implies that children be involved in interesting tasks and have the time to complete them. Individual pacing then entails a number of simultaneous activities in the classroom, whether the tasks are teacher - or pupil - chosen. However, as all the teachers in the sample were accustomed to grouping and to permitting after-work activities, this would necessitate only an extension of the teachers' present usage.

The innovation would be the combining of work and play in pursuit of academic goals. The three classes cited above, although different in many respects, shared this characteristic. The curriculum guidelines promote all the traditional subject areas as well as the increased opportunity for play. But the emphasis on Language Arts has already "squeezed" the other curriculum areas. Mathematics and science already occupy little time in the school day, and teachers view language activities as too important to be curtailed. Hence, the implied need is for more integrated programming, with activities, such as the pretend store, combining basic learnings with self-directed play. Perhaps, also

continued experience with such curriculum events will encourage teachers to a stronger sense of the creative and playful possibilities of "the basics" and of the intellectual and academic contributions to play.

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